BURNED AREA REHABILITATION PLAN
LONGSTREET FIRE

AGENCY/UNIT: U.S Fish and Wildlife Service
Ash Meadows National Wildlife Refuge

LOCATION: Amargosa Valley, Nye, Nevada

DATE: August 16, 2005

PREPARED BY: Anna Schrenk, Project Implementation Leader and Ash Meadows NWR Staff

Submitted By: _____ Date: _____
Richard Birger, Project Leader, Desert NWR Complex

BURNED AREA REHABLITATION PLAN
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EXECUTIVE SUMMARY

Introduction

This Burned Area Rehabilitation Plan has been prepared in accordance with Department of the Interior and Fish and Wildlife Service policy. This plan provides rehabilitation recommendations for all lands burned within the Longstreet Fire perimeter and downstream impact areas including: public lands administered by the Fish and Wildlife Service and other jurisdictions if necessary. The primary objectives of the Longstreet Fire Burned Area Rehabilitation Plan are to:

- Continue the control of non-native invasive species populations within the Longstreet Fire as identified by monitoring results to restore or establish a healthy and stable ecosystem in which native species are well represented.
- Monitor non-native invasive species treatment effectiveness and native planting recovery within the burned area to determine if objectives are being met to control non-native invasive species within the burned area and to identify future planting and non-native invasive species control measures as identified by monitoring;
- Continue to protect Cultural Resource sites exposed by loss of vegetation cover;

This plan addresses rehabilitation treatments. The U.S. Department of the Interior, Burned Area Emergency Response (BAER) Team conducted an initial analysis of fire effects on the cultural and natural resources of Ash Meadows National Wildlife Refuge (NWR) using ground and helicopter reconnaissance methods and satellite imagery. The plan primarily addresses impacts to the federally listed endangered species associated with Ash Meadows NWR. Ash Meadows NWR was created in 1984 primarily to protect 13 threatened and endangered species and at least 24 plants and animals found no-where else in the world. The abundance of indigenous life distinguishes the refuge as having a greater concentration of endemic species than any other area of it size in the United States, and the second greatest concentration of endemic species in North America. The refuge's large number of endemic species is directly related to its unique hydrogeology. Ash Meadows NWR is a major discharge point for a vast underground aquifer with more than 30 major seeps and springs discharging over 17,000 cubic yards of water per acre and supporting a vast network of spring, wetland, and riparian habitat in the Mojave Desert.

While the Longstreet Fire burned only 1,598 acres of the 23,000 plus acres making up Ash Meadows NWR, the burn affected important spring, riparian, and wetland habitats including burning over one major spring and the Carson Slough Riparian Area. Due to prior land management practices before establishment of the refuge in 1984, a major effort has been underway to control established non-native invasive species and restore native spring, riparian, and wetland habitats. The Longstreet Fire impacted major portions of this habitat.

Survival of many of the T & E and endemic species within Ash Meadows NWR is dependent upon control of non-native invasive species and the reestablishment of native plant cover to prevent further

spread of non-native invasive species into the burned area. As part of the emergency stabilization efforts, an NCC intern was hired to assist the refuge Biologist with implementing the non-native invasive species control, native planting and monitoring treatments and further assessing the extent of the non-native invasive species and the damage caused by the fire to vegetation. The intern has mapped nearly all of the burned area for non-native invasive species and their extent. The mapping has identified approximately 1120 acres of the 1598 acre fire to be infested with invasive species. The original vegetation assessment by the BAER team estimated the infested area to be only 450 acres. The mapping also identified several additional undesirable non-native invasive species, yellow star thistle (*Centaurea melitensis*) and hoary cress (*Cardaria draba*) are the most prevalent of the additional species that had not been recorded prior to the fire. The disturbance caused by the fire coupled with the record rainfall we received this winter has produced monoculture populations of five hooked Bassia (*Bassia hyssopilolia*) or one the refuge's highly invasive species. Some of these mapped populations are nearly 20 acres in size! Several sites have been planted with native grass material which has been successful in establishing native cover in areas with Bassia populations. Tamarisk control treatments have also recently been implemented as well. The FWS Nevada Archeologist has surveyed the treatment areas. Several sites were identified and consultation with SHPO has been initiated. An ad hoc GIS team mapped the burned fence left over from prior land management practices, burned debris associated with the fence and past agricultural practice were identified during this process and will be removed as part of the specification.

Individual resource Burned Area Assessment Reports produced by the BAER team are in Appendix I. The individual rehabilitation treatments specifications including effectiveness monitoring identified in the assessments can be found in Part F. A summary of the costs by jurisdictions is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains the Burned Area Rehabilitation Plan maps. Appendix IV contains photo documentation. Appendix V contains supporting documentation.

Fire Background

The Longstreet Fire started on August 1, 2004 as the result of a lightning strike at Cold Springs within the boundary of Ash Meadows National Wildlife Refuge. Fire suppression was a cooperative effort with assistance from the Amargosa Volunteer Fire Department, Bureau of Land Management and Nye & Clarke County Fire Crews. On Tuesday August 3, 2004, the Longstreet Fire was declared contained and county and local resources were released. Suppression tactics included limited handline construction and back burning off of existing fire breaks. The Longstreet Fire was declared controlled on August 4, 2004.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

The BAER Implementation Team started work on August 30, 2004 at the Ash Meadows NWR. With the approval and coordination of the Refuge staff the Project Implementation Leader (PIL) started implementation of the ES Plan and initiated further assessment and photo documentation of the damage caused by the fire. No damage was caused by suppression activities, although the disturbance the fire created coupled with the record level rains we received this year has created an explosion of non-native invasive species. Survival of many of the T & E and endemic species within the Longstreet burn area are dependent upon the control of the non-native invasive species and the reestablishment of native plant cover to prevent further spread of noxious weeds into the burned area. The PIL, Refuge Manager, and

Biologist are recommending the following rehabilitation treatments and the associate funding for implementation;

Recommended Rehab Treatments:

- Invasive Species Control
- Native Planting
- Cultural Resource Protection
- Vegetation Monitoring

Each of the above rehabilitation treatments directly relate to mitigating impacts of the Longstreet Fire to management and recovery of the Federal endangered or threatened species and species endemic to Ash Meadows NWR, and the protection of cultural resources that are protected under the enabling legislation for the refuge and are therefore fundable under the U.S. Department of the Interior, Burned Area Rehabilitation Program.

Implementation of the mitigation treatments for these species and their habitat are currently being initiated through the treatments specified in the ES Plan. It is critical to the survival of these species and their habitat that the treatments recommended in this Rehabilitation Plan be continued and fully funded as specified. It is important that the Implementation Team coordinate the recommended activities, track budgets, coordinate contracts, and prepare accomplishment reports in a timely manor for the rehabilitation projects for the Longstreet Fire in order for success.

At the conclusion of the funding period, a final Accomplishment Report will be due to the approval authority. The Accomplishment Report will document the funding received (initial and supplemental funding), treatments installed, the effectiveness of the installed treatments, and the results of monitoring activities.

Ash Meadows NWR Management Requirements

This plan documents the known damage to the vegetation resources of Ash Meadows NWR and provides specific costs for the rehabilitation actions necessary to ensure that critical native habitats adequately recover during the next growing season. This plan is consistent with approved recovery plan goals and legislative mandate for the refuge which states that Ash Meadows National Wildlife Refuge is to be managed *"to conserve (A) fish or wildlife which are listed as endangered species or threatened species….or (B) plants…"* 16 U.S.C. 1534. All specifications are fully consistent with the approved Pesticide Use Proposals (2005), which details best management practices (BMP) and Integrated Pest Management (IPM) methods for the herbicides to be used for invasive species treatments, Land Management Plans (2000), Fire Management Plan (1986), and Draft Comprehensive Conservation Plan (2004) for the Ash Meadows National Wildlife Refuge and Desert National Wildlife Refuge Complex, as well as the Recovery Plan for Endangered and Threatened Species of Ash Meadows, Nevada.(1990).

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PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	LONGSTREET
Fire Number	NV-AMR-A9U1
Agency Unit	FWS
Region	California/Nevada Operations
State	Nevada
County(s)	Nye
Ignition Date/Cause	August 1, 2004 Lighning
Zone	Western Great Basin
Date Fully Contained	August 3, 2004
Jurisdiction	Acres
U.S. Fish & Wildlife Service	1,525
Bureau of Land Management	66
Private	39
Total Acres	1,630
Date Controlled	August 4, 2004

PART B - NATURE OF PLAN

Type of Action (check one box below)

X	Initial Submission * Original Plan was submitted in Oct. 2004, was signed by all regional approving officials but never signed by the National approving officer; the plan has been altered significantly from the original submission.
	Amendment to the Initial Submission

PART C - REHABILITATION ASSESSMENT

Rehabilitation Objectives

- Continue the control of non-native invasive species populations to protect and enhance resource values including biodiversity, riparian and wetland habitats, and T&E Species.
- Plant native species to prevent the establishment of non-native invasive species.
- Monitor the non-native invasive species and native planting treatment for effectiveness to determine if objectives are being met to control non-native invasive species and to identify future planting and non-native invasive species control needs.
- Protect Cultural Resource Sites exposed by loss of vegetation cover.

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PART D - TEAM ORGANIZATION, MEMBERS, AND RESOURCE ADVISORS

I. Burned Area Rehabilitation Team Members:

Position	Team Member (Agency)
Team Leader	Anna Schrenk, (Implementation Leader)
Cultural Resources/Archeologist	LouAnn Speulda, (FWS)
Vegetation Specialist	Cristi Baldino, (FWS) Anna Schrenk, (Implementation Leader) Amber Schanklin, (NCC) Mark James, (FWS) Matt Brooks, (USGS) Curt Deuser, (NPS)
Wildlife Biologist	Cristi Baldino, (FWS)
GIS Specialist	Amber Shanklin, (NCC) Alex Mason, (NCC)

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PART E - SUMMARY OF ACTIVITIES AND COSTS

The summary of activities and cost table below identifies rehabilitation costs charged or proposed for funding from subactivity 9262 funding sources.

REHABILITATION ACTIVITIES COST SUMMARY TABLE - LONGSTREET FIRE

Spec #	Title	Unit	Unit Cost	# of Units	Work Agent	Cost
R-1	Invasive Species Control	Acre	$372.60	2250	SC,FA,CA	$838,424
R-2	Native Planting	Acre	$379.20	510	FA,SC	$193,393
R-3	Vegetation Monitoring	Surveys	$1512.25	80	CA,FA	$120,980
R-4	Cultural Resource Protection	Acre	$13.31	250	FA	$3,327
R-5	Implementation Leader	Month	$5412	13	FA or SC	$70,356
R-6	Plan Preparation	Plan	$8532	1	FA, SC	$8,532
					TOTAL COST	**$1,235,012**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

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PART F - INDIVIDUAL SPECIFICATION

TREATMENT NAME	**Invasive Species Control**	**PART E SPECIFICATION #**	**R-1**
NFPORS TREATMENT CATEGORY*	**Invasive Species**	**FISCAL YEAR(S) (list each year):**	**2006,2007**
NFPORS TREATMENT TYPE *	**Chemical Treatment**	**WUI? Y / N**	**No**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Continue to utilize integrated pest management practices (chemical, mechanical, and cultural control methods), as appropriate to prevent the spread and establishment of noxious weeds and undesirable exotic species known to exist within the fire perimeter of the Longstreet Fire and as defined by monitoring.

B. Location/(Suitable) Sites:
Control all weeds as defined on the Noxious Weed Map as "Existing" locations. There are approximately 1120 acres of known weed locations.

C. Design/Construction Specifications:

1. Continue to control non-native invasive weeds within the burn area and as identified by monitoring. Known infestation of Russian Knapweed (*Centaurea repens*), Hyssop bassia (*Bassia hyssopifolia*), (*Salsola spp*), Malta star thistle (*Centaurea melitensis*), hoary cress (*Cardaria draba*), and Flixweed (*Descurainia Sophia*) and Saltcedar (*Tamarix spp.*) Multiple treatments will be required with a variety of control techniques. Ground and aerial application of chemicals including but not limited to Garlon, Glysophate, Crossbow®, Arsonel® may be required. Timing of application may need to be adjusted to ensure treatment of each species is conducted in the proper phenological stage to ensure the protection and recovery native and endemic species.
2. Aerial applications will include the use of GPS guided/mapping capable aircraft to ensure treatment accuracy and proper documentation of weed control efforts.
3. Follow-up control in the fall, spring or subsequent years on treated sites.
4. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS—technology), new weed occurrences within burned area. Provide GPS shape files to aerial contractors for use in GPS guided applications. Document percent control or kill of noxious weeds.
5. Initiate Agency approved control measures on new weed occurrences where monitoring demonstrates the establishment or expansion of known weed populations.
6. Monitor water quality in aquatic areas adjacent to herbicide treatments areas using USGS POCIS passive samplers to detect herbicides.

D. Purpose of Treatment Specifications:
Control or contain existing noxious weed occurrences to prevent further spread onto uninfested sites within the burn area. Protect the ecological integrity and site productivity of nine (9) Threatened or Endangered plant and animal species and their associated habitats on lands administered by the AMNWR. Prevent spread of noxious weeds into critical habitats of T&E species on unburned lands within and adjacent to the refuge.

E. Treatment Effectiveness Monitoring Proposed:

Spot checking of noxious weed sites to ensure control methods are meeting management objectives. A staff person from the AMNWR will visit sites controlled every week after initial treatment; this is especially important for weed populations that are sprayed to ensure effectiveness of herbicide application. If both spring and summer/fall applications are used then visits will occur during both these times.

II. LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
USFWS – GS-11 Biologist @ $24.22/hour + benefits @ 33% = $32.21 x 8 hours/day x 42 days (2 months) x 2 year + 21 days (FY05) =	$27,060
USFWS – GS-05 Term Biological Technician @ $13.21/hour + benefits @ 33% = $17.57 x 8 hours/day x 42 days (2 Months) x 2 year +21 days (FY05) x 2 positions	$29,520
TOTAL PERSONNEL SERVICE COST	**$56,580**
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	
Vehicle Lease- 4WD Pick-up truck @ $600/month x 2 months x 2 yrs	$2,400.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	**$2,400.00**
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	**COST/ITEM**
Field and office supplies @ $1500 x 2 years	$3000.00
TOTAL MATERIAL AND SUPPLY COST	**$3000.00**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item	**COST/ITEM**
TOTAL TRAVEL COST	**$0.00**
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	**COST/ITEM**
Control weeds with herbicides on 450 acres (FY 06) & 450 acres (FY 07): aerial application of app. 900 ac @ $350.00/ac x 2 years	$225,000.00
Control weeds with herbicides on 112 acres: ground application, rough terrain – 112 acres @ $311.00/ac x 2 years	$69,664.00
Control weeds with contract crew (20 person crew @ $3,500/day) – 40 days X $3,500/day x 2 year	$280,000.00
Follow up weed treatments, ground applications, ATV @ $100/ac x 100 ac x 2 years	$20,000.00
Water Quality Testing- @ $3,972.50/site x 4 sites x 2 years	$31,780.00
Vegetation Control by Goats -$12,500/month x 6 months x 2 years	$150,000.00
TOTAL CONTRACT COST	**$776,444.00**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	09/01/2005	09/30/2005	FA	Acres	$1131.60	10	$11,316

FY06	10/1/2005	9/30/2006	FA,SC	Acres	$443.80	1120	$413,554
FY07	10/01/2006	9/30/2007	FA,SC	Acres	$443.80	1120	$413,554
						TOTAL	**$838,424**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	C
2.	**Documented cost figures from similar project work obtained from local agency sources.**	C,E,M
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	P
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

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TREATMENT NAME	**Native Planting**	**PART E SPECIFICATION #**	**R-2**
NFPORS TREATMENT CATEGORY*	**Reforestation**	**FISCAL YEAR(S) (list each year):**	**2005, 2006, 2007**
NFPORS TREATMENT TYPE *	**Planting**	**WUI? Y / N**	**No**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Native grasses, shrubs and trees will be hand-planted by contract crews to re-establish native vegetation within moderate to high burn severity areas. Native seed will be collected and propagated at federal and private nurseries to produce seedlings to plant with in the burned area after invasive species treatments are accomplished. The need for replanting and application rates will be based on the monitoring results from subsequent years. The plantings will be conducted in conjunction with noxious weed control and is intended to reduce encroachment by non-native invasive species and protect biological diversity of plant communities and critical T&E habitats.

B. Location/(Suitable) Sites:
The areas to be replanted are within the Longstreet fire perimeter in and along historic spring/stream channels and in areas where noxious weeds have encroached. The replanting will occur mostly in areas within the burn that was moderate to high intensity. The area mostly coincides with the existing noxious weed locations. See Appendix III, Noxious Weed Map.

C. Design/Construction Specifications:

1. The species selected for replanting the burn area will include but not limited to willow, ash, mesquites, saltgrass, alkali sacton, baccaris, Indian rice grass. Seed will be collected from local species and propagated under contract with federal and private nurseries.

2. Container stock, grass plugs will be planted by contract crews under the guidance of Refuge staff.

3. Application timing will correspond with chemical and mechanical treatments as well as local conditions.

D. Purpose of Treatment Specifications:

The purpose of the treatment is to help prevent noxious weed encroachment and protect T&E species and their associated habitats. The native grass plantings are important in reducing bare ground, stabilizing plant communities, reducing spread of non-native invasives and protecting critical habitats of endemic plant species.

E. Treatment Effectiveness Monitoring Proposed:

See Vegetation Monitoring Specification.

LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
USFWS – GS-11 Biologist @ $24.22/hour + benefits @ 33% = $32.21 x 8 hours/day x 42 days (2 months) x 2 year + 21 days (FY05) =	$27,060
USFWS – GS-05 Term Biological Technician @ $13.21/hour + benefits @ 33% = $17.57 x 8 hours/day x 42 days (2 Months) x 2 year +21 days (FY05) x 2 positions =	$29,520
TOTAL PERSONNEL SERVICE COST	**$56,580**

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	**COST/ITEM**
Vehicle Rental- 20' container truck x $500/mo x 2 months x 2 year	$2,000.00
Vehicle Lease- 4WD Pick-up truck @ $600/month x 2 months x 2 yrs	$2,400.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	$4,400.00
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	**COST/ITEM**
TOTAL MATERIAL AND SUPPLY COST	$0.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item	**COST/ITEM**
TOTAL TRAVEL COST	**$0.00**
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	**COST /ITEM**
Native Seed Collection and Cleaning @ 4 trips x $5925/per trip x 2 years	$47,400.00
Plant materials- 60 plants/acre x 250 acres x $.1.84/plant x 2 year	$55,000.00
Native Plantings- Contract Crew @ $6/per 1 gallon container x 15,000 plants x 2 year	$30,012.00
TOTAL CONTRACT COST	$132,412.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	09/01/2005	09/30/2005	FA	Acres	$1131.60	10	$11,316
FY06	10/01/2005	09/30/2006	FA,SC	Acres	$364.15	250	$91,038
FY07	10/01/2006	09/30/2007	FA,SC	Acres	$364.15	250	$91,038
						TOTAL	**$193,393**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	C
2.	**Documented cost figures from similar project work obtained from local agency sources.**	E
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	P
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

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TREATMENT NAME	**Vegetation Monitoring**	**PART E SPECIFICATION #**	**R-3**
NFPORS TREATMENT CATEGORY*	**Monitoring**	**FISCAL YEAR(S) (list each year):**	**2005,2006,2007**
NFPORS TREATMENT TYPE *	**Treatment Effectiveness Monitoring**	**WUI? Y / N**	**No**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Continue to monitor non-native invasive species treatment effectiveness and native plantings recovery within the burned area to determine if management objectives are being met and to identify any future planting or noxious weed control needs. Plants to be monitored include saltcedar, Russian knapweed, Bassia, Mustard, Malta Starthistle, Hoary cress and other invasives found and all native planting treatments.

Continue monitoring for new occurrences of undesirable plant species (noxious and exotic), within the burned area. Monitoring will occur in un-infested areas having a high potential for weed invasion. Continue monitoring for success of noxious weed treatments.

Continue monitoring for establishment of planted native grasses and other plant materials the first year following treatment to determine if revegetation efforts are meeting management goals.

B. Location/(Suitable) Sites:

Monitoring for noxious weeds will occur in areas with potential for weed invasion and in areas that are treated for noxious weeds (see Noxious Weed Map).

Monitoring for planting success will occur in treated areas to determine success in competing with noxious weeds and reclaiming bare ground.

C. Design/Construction Specifications:

1. Establish permanent transects for each treatment which will be established prior to treatment. The monitoring protocol has been developed by USGS, using a modified version of NPS-FMA protocol. The monitoring will evaluate one or more of the following: cover, height, density, frequency, and visual obstruction for individual plant species or groups of species. Line intercept can be used to measure shrub canopy cover and quadrat-sampling methods can be used to measure frequency. Collect data to describe the vegetation recovery from the fire. Compare reestablishment within burn area to a control area outside of burn.
2. Prepare annual reports and a final report analyzing the data for burned and unburned sites to determine cover and frequency of natives.
3. Continue short-term monitoring on known noxious weed occurrences and in areas of potential spread within burned area to determine spread of noxious and invasive plant species. The monitoring protocol has been developed by USGS, using a modified version of NPS-FMA protocol.
4. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS—technology), new weed occurrences within burned area.
5. Continue with Agency approved control measures on new weed occurrences where monitoring demonstrates the establishment or expansion of known weed populations.
6. For native planting areas, monitoring transects shall continue to be read to determine survival rates of planted species including healthy, sick, dead or missing plants. This data may be used to determine if additional Emergency Stabilization and/or Rehabilitation actions will be continued.

D. Purpose of Treatment Specifications:

Noxious weed and undesirable plant monitoring is required to detect new noxious weed occurrences in the burned area and to monitor known weed densities and determine the effectiveness of treatments. Monitoring of native grass planting success and effectiveness is required to ascertain the degree of competition with undesirable plant species and determine if additional treatments are necessary to control non-native invasive species and protect ecosystem biodiversity.

E. Treatment Effectiveness Monitoring:

As described in this specification. Report on treatment effectiveness will be produced annually.

II. LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
USFWS – GS-11 Biologist @ $24.22/hour + benefits @ 33% = $32.21 x 8 hours/day x 42 days (2 months) x 2 year + 21 days (FY05) =	$27,060
USFWS – GS-05 Term Biological Technician @ $13.21/hour + benefits @ 33% = $17.57 x 8 hours/day x 42 days (2 Months) x 2 year +21 days (FY05) x 2 positions	$29,520
TOTAL PERSONNEL SERVICE COST	**$56,580**
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	**COST/ITEM**
Vehicle Lease- 4WD Pick-up truck @ $600/month x 2 months x 2 yrs	$2,400.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	$2,400.00
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	**COST/ITEM**
Field supplies (rebar, fence posts, measuring tape, monitoring frames, flagging, etc) and office supplies (paper, computer discs, pencils, etc) @ $1000 x 2 years	$2,000
TOTAL MATERIAL AND SUPPLY COST	$2,000
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item	**COST/ITEM**
TOTAL TRAVEL COST	**$0.00**
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	**COST /ITEM**
Monitoring Contract for data acquisition, data management and reports- USGS @ $30,000/year x 2 years	$60,000
TOTAL CONTRACT COST	$60,000

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	09/01/2005	09/30/2005	FA	Survey	$1131.60	10	$11,316
FY06	10/01/2005	9/30/2006	FA,CA	Survey	$1,566.63	35	$54,832
FY07	10/01/2006	9/30/2007	FA,CA	Survey	$1,566.63	35	$54,832
						TOTAL	**$120,980**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	

2.	**Documented cost figures from similar project work obtained from local agency sources.**	E,M
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	C
4.	**Estimates based upon government wage rates and material cost.**	P
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

BURNED AREA REHABLITATION PLAN
LONGSTREET FIRE

TREATMENT NAME	**Cultural Resources Protection**	**PART E SPECIFICATION #**	**R-4**
NFPORS TREATMENT CATEGORY*	**Heritage Resources**	**FISCAL YEAR(S) (list each year):**	**2005**
NFPORS TREATMENT TYPE *	**Protect Heritage Sites**	**WUI? Y / N**	**no**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description:
Pursuant to Section 106 of the National Historic Preservation Act, as amended (NHPA), federal undertakings that may affect Historic Properties require the lead agency to consult with affected tribes as equal partners. Therefore, local tribes must be consulted concerning any effects that may occur on Historic Properties of Native American origin that are located within re-vegetation treatment areas. Additionally, a professional archaeologist, meeting the Secretary's standards shall provide oversight to ensure the lead federal agency (FWS), has met its obligations under the NHPA.

B. Location/(Suitable) Sites:
Historic Properties within the Longstreet Fire Re-vegetation treatment areas. Such locations are exempt from public disclosure under the Archaeological Resources Protection Act of 1979 (ARPA), and the Freedom of Information Act (FOIA) The FWS maintains its own records on the location of sensitive cultural resources, and will provide, as necessary such information to law enforcement officers, tribal consultants, and the professional archaeologist having oversight for compliance with the implementing regulations under the NHPA.

C. Design/Construction Specifications:

1. Complete Section 106 compliance requirements for Rehabilitation activities and treatments.

D. Purpose of Treatment Specifications:
Tribal consultation will occur as part of the Section 106 process. The professional archaeologist, in charge, shall ensure that such consultation meets the implementing regulations under the NHPA, and that the FWS is in full compliance with Section 106 for this federal undertaking.

E. Treatment Effectiveness Monitoring Proposed:

SHPO concurrence shall suffice to demonstrate FWS has met its requirement for tribal consultation and compliance with Section 106 of the NHPA.

II. LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): **Do not include contract personnel costs here (see contractor services below).**	**COST/ITEM**
Archaeologist GS-12 @ $30.92/Hr x 33% for benefits = $41.12 x 40 hours =	**$1,645**
TOTAL PERSONNEL SERVICE COST	**$1,645**
EQUIPMENT PURCHASE, LEASE OR RENTAL (Item @ Cost/Hour or Cost/Day X # Hours or # Days X # Fiscal Years = Cost/Item): (Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.)	**COST/ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	**$0**

MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item):	**COST/ITEM**
TOTAL MATERIALS AND SUPPLY COST	**$0**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item):	**COST/ITEM**
Lead archeologist @ $1,500 X 1 Rounds Trips = Per Diem & Lodging for Arch. @ $91/day x 2 days	**$1500** **$182**
TOTAL TRAVEL COST	**$1682**
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item):	**COST/ITEM**
TOTAL CONTRACT COST	**$0**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	08/15/2005	09/30/2005	FA	ACRES	$13.31	250	$3327
						TOTAL	**$3327**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	
2.	**Documented cost figures from similar project work obtained from local agency sources.**	T
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	P
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

BURNED AREA REHABLITATION PLAN
LONGSTREET FIRE

TREATMENT NAME	**Implementation Leader**	**PART E SPECIFICATION #**	**R-5**
NFPORS TREATMENT CATEGORY*	**Administration**	**FISCAL YEAR(S) (list each year):**	**2005, 2006, 2007**
NFPORS TREATMENT TYPE *	**Contract Administration**	**WUI? Y / N**	**No**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

A. General Description:
Hire Implementation Leader for 6 months to develop additional contract specifications or amendments, monitor contractor performance, process contracts, maintain project documentation, and track expenditures, complete project accomplishments.

B. Location/(Suitable) Sites:
See other treatments

C. Design/Construction Specifications:

1. Implementation Leader will coordinate all aspects of rehabilitation plan including administering contracts, documentation of treatments installed, providing accomplishment report, submitting supplemental requests for funding, ensuring the completion of all approved treatments, and coordinating treatments with other agencies and private landowners.
2. Implementation Leader will coordinate on-the-ground implementation of treatments including sites orientation of contractors, developing daily/weekly work plans for contractors/crews, and supervising work.
3. At completing of the funding period the implementation leader will prepare a final accomplishment report.

D. Purpose of Treatment Specifications:
The implementation leader will develop contract specifications, coordinate contractor access to remote closed refuge property, coordinate all aspects of project implementation, inspect subcontractor work, and report accomplishments.

E. Treatment Effectiveness Monitoring Proposed:
N/A

II. LABOR, MATERIALS AND OTHER COST:

➢ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item):** **Do not include contract personnel costs here (see contractor services below).**	**COST / ITEM**
USFWS – GS-11 Term @ $24.22/hour + benefits @ 33% = $32.21 x 8 hours/day x 126 days (6 months) x 2 year + 21 days(FY05)	$70,356
TOTAL PERSONNEL SERVICE COST	$70,356
➢ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item):** **Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST / ITEM**
One Vehicle and fuel @ $600/month x 12 months (2 yrs) =	$7200.00
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$7200.00**
➢ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST / ITEM**
TOTAL MATERIALS AND SUPPLY COST	$0
➢ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST / ITEM**

TOTAL TRAVEL COST	$0
➢ **CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST / ITEM**
TOTAL CONTRACT COST	**$0**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	09/01/2005	09/30/2005	FA	Month	$5412	1	$5412.00
FY06	10/01/2005	9/30/2006	FA	Month	$5412	6	$32,472
FY07	10/01/2006	09/30/2007	FA	Month	$5412	6	$32,472
						TOTAL	**$70,356**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	
2.	**Documented cost figures from similar project work obtained from local agency sources.**	
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	P,E
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

BURNED AREA REHABLITATION PLAN
LONGSTREET FIRE

TREATMENT NAME	**Plan Preparation**	**PART E SPECIFICATION #**	**R-6**
NFPORS TREATMENT CATEGORY*	**Planning**	**FISCAL YEAR(S) (list each year):**	**2005**
NFPORS TREATMENT TYPE *	**BAR Plan**	**WUI? Y / N**	**no**
IMPACTED COMMUNITIES AT RISK	**None**	**IMPACTED T&E SPECIES**	**None**

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Prepare the Burned Area Rehabilitation plan for the Longstreet Fire for Ash Meadows National Wildlife Refuge.

B. Location/(Suitable) Sites:
Plan has been prepared to address lands within Ash Meadows National Wildlife Refuge.

C. Design/Construction Specifications:

1. Update resource assessments with new information from data collected during ES implementation that relates to damage or changes that were caused by the Longstreet fire.
2. Include provisions for monitoring and evaluation of treatments and activities to measure effectiveness and successes, and a procedure for collecting, archiving and disseminating results.
3. Write specifications for recommended treatments which clearly delineate funding and responsibilities for implementation, operations, maintenance, monitoring and evaluation throughout the life of the project.
4. Provide compliance documentation that approves that implementation of activities and document that treatments will be compatible with long-term goals and approved land use plans.

D. Purpose of Treatment Specifications:
To prepare a comprehensive BAR plan to manage or mitigate the fire impacts in order to protect life, property and critical cultural and natural resources

E. Treatment Effectiveness Monitoring Proposed:

Per policy, an annual and final accomplishment report will be prepared with detailed costs and monitoring narratives. Additional funding for projects is contingent on the submittal and record of this annual report. (DM 620, Chapter 3.8 Sec K).

II. LABOR, MATERIALS AND OTHER COST:

➢ **PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item):** **Do not include contract personnel costs here (see contractor services below).**	**COST / ITEM**
Administrative Services	
*All costs above reflect salaries, per diem, travel, supplies, and administrative costs	$1,903
TOTAL PERSONNEL SERVICE COST	$1,903
➢ **EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item):** **Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.**	**COST / ITEM**
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
➢ **MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):**	**COST / ITEM**
TOTAL MATERIALS AND SUPPLY COST	
➢ **TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):**	**COST / ITEM**

	TOTAL TRAVEL COST	
➢	**CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):**	**COST / ITEM**
	PIL	
	*All costs above reflect salaries, per diem, travel, supplies, and administrative costs	$6,629
	TOTAL CONTRACT COST	$6,629

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	10/01/2005	08/10/2005	FA,C	PLAN	$8,532	1	$8,532
						TOTAL	**$8,532**

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	
2.	**Documented cost figures from similar project work obtained from local agency sources.**	
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	C,P
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

BURNED AREA REHABLITATION PLAN
LONGSTREET FIRE

PART G - RESTORATION REQUIREMENT

The following are post-rehabilitation implementation, operation, maintenance, monitoring, and evaluation actions beyond three years from fire control to ensure the effectiveness of initial investments. Estimated annual cost and funding source is indicated.

1. Map, Implement and monitor non-native invasive species through Integrated Vegetation Management action ($12,783,000.,FY08-FY12, SNPLMA)
2. Implementation of habitat conservation plan ($50,000, MSHCP)
3. Implement Non-native invasive species control and revegetation (in-kind services and support, SNRT)

PART H - CONSULTATIONS

U.S. Fish and Wildlife Service
LouAnn Speulda, Regional Archeologist

U.S. Fish and Wildlife Service
Shawn Goodchild, Ecological Services

APPENDIX I - BURNED AREA ASSESSMENT REPORTS

- Amended Vegetation Damage Assessment

LONGSTREET FIRE VEGETATION DAMAGE ASSESSMENT REPORT

I. Objectives
- Evaluate potentials for non-native invasive species encroachment into native plant communities and provide treatments for control.
- Provide management recommendations to assist vegetation recovery and species habitat protection and rehabilitation.

II. Issues
- Short and long term impacts to plant communities and vegetation resources on Ash Meadows NWR lands within the Longstreet Fire.
- Protection and enhancement of other resource values including biodiversity, riparian communities and T&E plant species.
- Management strategies which provide for the recovery and revegetation of heavily impacted areas.
- Identification and early detection of non-native invasive species spread within the burn area.

III. Observations

This assessment identifies and addresses known and potential impacts to the vegetation resources within the Longstreet fire on Ash Meadows NWR in addition to what was provided by the BAER team's vegetation assessment provided in the ES Plan. Vegetation resources, for this assessment will be defined as plant communities, individual plant species, T&E plant species and critical habitat for T&E/Sensitive plants.

Findings and Recommendations contained in this assessment are based upon information obtained from field reconnaissance and data collected within the burned area. Data was collected within the impacted area using ground GPS/GIS technology.

This assessment will further attempt to capture the concerns and issues of Ash Meadows NWR staff, USFWS Ecological Services, BAER Implementation Leader and other cooperating agencies for the future management of the lands in and near the burned area. It will expand on the known damage to the vegetation resources, the critical need for non-native invasive species control and revegetation of native species for the recovery of the vegetation resources and the effects of proposed rehabilitation treatments.

A. Background Information

The lightning-caused Longstreet Fire started in the late afternoon of August 1, 2004 at Cold Springs on the AMNWR. High temperatures, winds gusting at 25-35 miles per hour, low relative humidity and very low live fuel moistures resulted in a fast moving fire with rapid rates of spread through Carson Slough and adjacent riparian areas, Ash/Mesquite, and saltbush plant communities. Much of the Ash/Mesquite plant communities contain a high percentage of saltcedar (*Tamarix spp.).* The fire was declared contained on August 3, 2004. A total of 1,630 acres has been impacted by the fire, including private (39 acres), Bureau of Land Management (66 acres) and USFWS lands administered by the AMNWR (1525 acres).

Resource concerns expressed by Ash Meadows NWR for vegetation resources include native vegetation loss, short and long-term impacts to meadow and mesquite/ash/willow habitats, and the potential for spread of non-native invasive species into critical habitat for T&E and endemic species. Resource management direction was obtained from the *Ash Meadows Refuge Management Plan* (1987), *Recovery Plan for the endangered and threatened species of Ash Meadows, Nevada* (1990), and information contained within the *Draft Ash Meadows Comprehensive Conservation Plan* (2004).

B. Reconnaissance Method

Ground reconnaissance methods have continued after the departure of the BAER Team's and their initial assessment. Mapping of the non-native invasive species within the burn area is nearly complete which shows a more accurate impact of non-native invasive species within the burned area. Ground reconnaissance included traversing affected areas on foot, and recording observations of non-native invasive species using GPS/GIS.

C. Findings

Ash meadows is a unique wetlands system associated with springs, seeps, outflow channels and areas with high groundwater tables, including woodlands comprised of mesquite and ash trees and a variety of herbaceous communities. A recent checklist of vascular plants at AMNWR includes 332 taxa, of which 227 (83 percent) are native to the Ash Meadows ecosystem. Eight of the plant species are endemic and their distribution is restricted to the Ash Meadows area. Many of these species have been impacted by historic development of the area. In the early 1960's and 70's, springs and streams were extensively altered and diverted for agricultural development. Thousands of acres were leveled adjacent to the springs for alfalfa and other intensively farmed crops. In the late 1970's the property was purchased by a large land developer and initial work began for planned housing tracts and golf courses. In an effort to protect rare endemic species, the Nature Conservancy purchased 12,654 acres in 1984 which was then sold to the USFWS that same year.

Primary plant communities that have been mapped in the fire area include creosote bush (*Larrea tridentata)* vegetation community predominates in the surrounding region of the fire while salt grass (*Distichilis spicata*), spiny saltbush (*Atriplex confertifolia*). Ash trees (*Fraxinus velutina* var.*coriacea*) mesquite *(Prosopis glandulosa var torreyana and Prosopis pubescens*), narrow-leaved willow (*Salix* exigua) dominate the vegetation within Ash Meadows. Cattail-bullrush wetlands occupy many of the man-made stream channels that bisect the fire area. Spring discharge maintains soil moisture in the lowlands while uplands only receive water from rainfall that averages less than 2.75 inches annually.

Ash Meadows is essentially a watered island amidst the expansive Mohave Desert. Because of this feature, however, there still exists endemic species whose existence has been threatened by land disturbance, moisture regime modification, and non-native invasive species expansion.

In March of 2005, an intern was hired through Nevada Conservation Corps (NCC) to assist the refuge biologist who is acting as the project lead for the vegetation treatments outlined in the ES BAER Plan. Mapping began of the non-native invasive species within and adjacent to the burned area shortly thereafter. During the initial vegetation assessment prepared by the BAER team the non-native invasive species were identified to exist within the burned area and

estimated using Ash Meadows NWR staff information. It was estimated that the non-native invasives species encompassed an area within the burn of 450 acres; this estimate has significantly increased as identified by the mapping efforts. It should be noted that approximately 658 acres of the Longstreet Fire previously burned in the Fairbanks Fire of August, 2000. The Fairbanks fire was rehabilitated during 2000-2002 with extensive work being conducted on non-native invasive species control (knapweed, saltcedar), native vegetation plantings (ash, mesquite, willow), and T&E species monitoring. Information and field verification of past rehabilitation successes and failures have been incorporated into the rehabilitation specifications to gain the best possible success in accomplishing recovery efforts. Vegetation recovery of native species has been significant in portions of Carson slough. These species include Spring-loving centaury, alkali sacaton, rushes, and saltgrass. Regeneration of some of these native species especially saltgrass occurs through various underground rooting structures, which are well protected from the direct effects of fire by overlying soil. Prolific sprouting from rootstalks, roots, and rhizomes has been prolific with the saltgrass and other slough species. Field reconnaissance has confirmed weed locations and new occurrences have been located. Mapped non-native invasive species include salt cedar (*Tamarix ramosissima*), 5-hook Bassia (*Bassia hyssopifolia*), Russian knapweed (*Acroptilon repens*), and Russian thistle (*Salsola spp*), Malta star thistle (*Centaurea melitensis*), hoary cress (*Cardaria draba*), and Flixweed (*Descurainia Sophia*). The estimated extent of the non-native invasive species is 1120 acres; the initial estimate was 450 acres.

Saltcedar is found primarily along waterways and adjacent to old agricultural fence and has the ability to totally choke out all vegetation in riparian areas. The extent of the Saltcedar is estimated to be approximately 450 acres in size. Saltcedar is a primary threat to the recovery of Ash and Mesquite and threatens critical habitat for many wildlife and plant species. Resproutning of the tamarisk has been identified on plants that were not burned completely. Russian knapweed is expanding at an alarming rate. The mapped population is 30 plus acres in size. Ash Meadows NWR has successfully combated Russian knapweed in some areas however the lack of funding and personnel now threatens the gains they have made on several large populations. Malta star thistle, Flixweed and hoary cress were also identified and their combined acreage is approximately 52 acres. An additional 40 acres includes a number of smaller populations of potentially invasive species.

Management guidelines contained within the *Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada* state that "All non-native animals and plant species must be eradicated from essential habitat." Additionally, the plan states that "Historic vegetation must be reestablished in all areas not requiring maintenance of structures for management purposes."

The most prevalent non-native invasive species in the burn area that is expanding at an alarming rate is Bassia. The populations of Bassia are estimated to be over 650 acres in size. Bassia is originally from Europe, is common is cultivated fields and probably was introduced to the Refuge through hay. Bassia was present at least since 1996 but has expanded on the Refuge over the past eight years and is spreading rapidly. Phenologically, it takes advantage of disturbed areas, grows to 5 feet in height with 10 foot diameters, and inhibits growth of other plants within its zone of influence. Bassia has a 5-hooked fruit and spines on its stems that make seed dispersal easy and walking through a stand difficult after maturation. The Longstreet fire reduced some accumulations of Bassia however it also contributed to fire intensity and spread due to

accumulation of old plants in and around trees and shrubs. Many more trees were lost due to fuel accumulations of Bassia around their bases. Like tumble weed, it breaks off at maturity and is transported across the landscape disseminating seed. Where native species are prevalent, Bassia is not found. However, Bassia is an opportunistic non-native invasive species and there is a high probability it will infest the sites disturbed by the fire. Bassia occurrences were recorded in saltgrass, willow, ash, mesquite plant communities and on abandoned farm fields. Areas of bare mineral soil that are adjacent to existing weed occurrences will probably be occupied by non-native invasive species seeds. Bassia can only be treated during its early growth stage and native plantings will be required to reclaim bare soil areas to prevent re-infestation and plant growth. Mapping has identified some Bassia populations of up to 20 acres in size. Many of these are monocultures of Bassia or a mix of several non-native invasive species.

IV. Recommendations

A. Rehabiltation

- Invasive Species Control- continue to control non-native invasive species population using Integrated Pest Management practices to control known and new populations within and adjacent to the burn area.
- Native Planting-Continue plantings of native grasses, shrubs and trees which are critical to maintain the biological integrity and biodiversity of the plant communities within the burned area and stem the noted expansion of non-native invasive species.
- Vegetation Monitoring-Monitor known and new populations of non-native invasive species; monitor treatment effectiveness and implement adaptive management principles to effectively treat non-native invasives within the Longstreet fire.

B. Non-specific related recommendations

- Continue to partner with USGS-Las Vegas Field Station; currently assisting in monitoring the vegetation within the burned area, as well as actively pursue partnerships with other agencies and non-profits to assist with implementation of rehabilitation efforts
- Continue consultation with USFWS Ecological Services on the PUP's and non-native invasive species control measures to ensure protection of T&E and endemic species.
- Thoroughly document treatments and results for annual accomplishment reporting. Pursue additional Rehabilitation funding as necessary.

V. Consultations

NAME, AGENCY, TITLE	**TELEPHONE**
Shawn Goodchild, FWS, Biologist	702-515-5230
Curt Deuser, NPS, EPMT Lead	702-293-8979
Matt Brooks, USGS, Vegetation Ecologist	702-564-4615

VI. References

U.S. Fish and Wildlife Service, Ash Meadows National Wildlife Refuge August 2000 Wildfire Emergency Rehabilitation Plan. 2000.

U. S. Fish and Wildlife Service, Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada. 1990.

Ash Meadows River National Wildlife Refuge, Draft Comprehensive Conservation Plan. 2004.

2003 Annual Report for the Ash Meadows National Wildlife Refuge. December 2003.

Ash Meadows Refuge Management Plan (1987)

Whitson, Tom D. (Ed). 1996. Weeds of the West.

The Nature Conservancy. 1996. A checklist of the vascular plants of Ash Meadow National Wildlife Refuge, Nye County, Nevada. Published in cooperation with the USFWS. 18pp.

Anna Schrenk, BAER Implementation Leader, Private Contractor- (760)-367-3885

Cristi Baldino, Widlife Biologist, USFWS- (775) 372-5435

Sharon McKelvey, Refuge Manager, USFWS- (775)-372-5435

APPENDIX II - ENVIRONMENTAL COMPLIANCE

- **Environmental Compliance Consideration and Documentation**
- **NEPA Environmental Checklist**

BURNED AREA REHABLITATION PLAN
LONGSTREET FIRE
Environmental Compliance Consideration and Documentation

Federal, State, and Private Lands Environmental Compliance Responsibilities

All projects proposed in the LONGSTREET Burned Area Rehabilitation Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of the Interior and Fish and Wildlife Services. This Appendix documents the Burned area emergency response team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the LONGSTREET Fire.

This plan identifies specific emergency stabilization and monitoring actions designed to mitigate damages to resources that result of the Longstreet Fire.

Agency Specific Guidance: This NEPA documentation has been developed in accordance with the following agency specific guidelines.

U.S. Fish and Wildlife Service: Emergency stabilization, rehabilitation and monitoring actions proposed on will comply with U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 (DM 6, Appendix 1).

Related Plans and Cumulative Impact Analysis

Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada (1990).

Ash Meadows National Wildlife Refuge: *"to conserve (A) fish or wildlife which are listed as endangered species or threatened species….or (B) plants…"* 16 U.S.C. 1534 (Endangered Species Act of 1973).

Proposed Land and Mineral Withdrawal at the Ash Meadows National Wildlife Refuge and Environmental Assessment (2000).

Annual Noxious Weed Control Plan 2004, including NEPA Compliance Documentation and Biological Opinions.

Ash Meadows Fire Management Plan, 1986

Cumulative Impact Analysis

Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The rehabilitation treatments for areas affected by the Longstreet Fire, as proposed in the Longstreet Fire Burned Area Emergency Stabilization Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant

impact on the quality of the environment although the use of goats as an IPM technique in the control of non-native invasive species will be contingent on the completion and approval of all necessary compliance. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

Applicable and Relevant Categorical Exclusions

Except for the use of goats as IPM technique for the treatment of non-native invasive species all treatments proposed in this plan for Longstreet Fire are Categorically Excluded from further environmental analysis as provided for in the *specify relevant departmental and agency Categorical Exclusions*. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the Burned area emergency response team and documented below.

Applicable Department of Interior Categorical Exclusion

Part 516 DM 2, App. 1.1	Personnel actions and investigations and personnel services contracts.
Part 516 DM 2, App. 1.4	Law enforcement and legal transactions, including such things as arrests, investigations, patents, claims, legal opinions, and judicial activities including their initiation, processing, settlement, appeal, or compliance.
Part 516 DM 2, App. 1.6	Non-destructive data collection, inventory (including field, aerial and satellite surveying and mapping), study, research and monitoring activities.
Part 516 DM 2, App. 1.7	Routine and continuing government business, including such things as supervision, administration, operations, maintenance and replacement activities having limited context and intensity; e.g. limited size and magnitude or short-term effects.
Part 516 DM 2, App. 1.11	Activities which are educational, in formational, advisory or consultative to other agencies, public and private entities, visitors, individuals or the general public.
Part 516 DM 6 App. 4.4 M (2)	Establishment of non-disturbance environmental quality monitoring programs and field monitoring stations including testing services.

Applicable Fish and Wildlife Service Categorical Exclusions

(1) Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality or habitat destruction, no introduction of contaminants, or no introduction of organisms not

indigenous to the affected ecosystem.

(2) The construction of new, or the addition of, small structures or improvements, including structures and improvements for the restoration of wetland, riparian, streams, or native habitats, which result in no or only minor changes in the use of the affected local area. The following are examples of activities that may be included.

i. The installation of fences.
ii. The construction of small water control structures.
iii. The planting of seeds or seedlings and other minor revegetation actions.
iv. The construction of small berms or dikes.
v. The development of limited access for routine maintenance and management purposes.

(3) Fire management activities including prevention and restoration measures, when

conducted in accordance with departmental and Service procedures.

Statement of Compliance for the Longstreet Fire Burned Area Rehabilitation Plan.

This section documents consideration given to the requirements of specific environmental laws in the development of the Longstreet Fire Burned Area Rehabilitation Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Longstreet Fire Burned Area Rehabilitation Plan:

1. **National Historic Preservation Act (NHPA).** The BAER Team Cultural Resources Specialist has determined that emergency stabilization treatments will not adversely affect cultural resources within the Longstreet Fire burned area. This plan provides fund to complete any additional NHPA consultation and documentation requirements.

2. **Executive Order 11988, Floodplain Management.** All proposed treatments are in compliance with this order.

3. **Executive Order 11990, Protection of Wetlands.** All proposed treatments are in compliance with this order.

4. **Executive Order 12372, Intergovernmental Review.** Coordination and consultation is ongoing with affected Tribes, Federal, and local agencies. A copy of the plan will be disseminated to all affected agencies and funding is provided by the plan to facilitate completion of tribal consultations.

5. **Executive Order 12892, Federal actions to address Environmental Justice in Minority and Low-Income Populations**. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States, The BAER Team has determined that the actions

proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.

6. **Endangered Species Act.** The BAER Team wildlife biologist and vegetation specialist consulted with the U.S. Fish and Wildlife Service regarding actions proposed in this plan and potential affects on Federally listed species and have determined that there is no effect, except for the use of goats for the control of non-native invasive species, implementation will be contingent on compliance approval. Individual agencies are responsible for continued consultations during plan implementation as site specific treatments are developed.

7. **Clean Water Act.** All proposed treatments are in compliance with this Act. Emergency stabilization and rehabilitation measures proposed are necessary to maintain clean water within the burn and adjacent areas. Long-term impacts are considered beneficial to water quality.

8. **Clean Air Act.** Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team determined that treatments prescribed in the Longstreet Fire burned area will have short-term minor impacts to air quality that would not differ significantly from routine land use practices for the area. Long-term treatments proposed in the plan would be expected to have a beneficial impact to air quality through stabilization of ash and soils within the Longstreet Fire burned area.

9. **Wilderness Act.** The Longstreet Fire did not impact designated or proposed wilderness.

CONSULTATIONS

LouAnn Speulda, Archeologist, Nevada Fish and Wildlife Service Office
Richard Hadley, Region BAER Coordinator, California/Nevada Opperations
Dick Birger, Project Leader, Desert National Wildlife Refuge Complex
Cristi Baldino, Wildlife Biologist, Ash Meadows National Wildlife Refuge
Sharon McKelvey, Refuge Manager, Ash Meadow National Wildlife Refuge
Shawn Goodchild, Wildlife Biologist, Ecological Services, Las Vegas, Nevada
Cynthia Martinez, Wildlife Biologist, Ecological Services, Las Vegas, Nevada

NEPA Checklist: If any of the following exception applies, the Burned Area Rehabilitation Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)
( ) (x) Adversely affect Public Health and Safety
( ) (x) Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
( ) (x) Have highly controversial environmental effects.

( ) (x) Have highly uncertain environmental effects or involve unique or unknown environmental risks.
( ) (x) Establish a precedent resulting in significant environmental effects.
( ) (x) Relates to other actions with individually insignificant but cumulatively significant environmental effects.
( ) (x) Adversely effects properties listed or eligible for listing in the National Register of Historic Places
( ) (x) Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
( ) (x) Threaten to violate any laws or requirements imposted for the "protection of the environment" such as Executive Order 1 1 988 (Floodplain Management) or Executive Order 1 1 990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

( ) None
(x) Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA will be prepared. A report will be prepared under contract as specified by the Burned Area Rehabilitation Plan.

A NHPA Clearance Form:

(x) Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
( ) Is not required because the Burned Area Rehabilitation Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)
( ) (x) Does the Burned Area Rehabilitation Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
(x) ( ) Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the Longstreet Fire Burned Area Rehabilitation Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically excluded from further environmental (NEPA) review and documentation. Burned area emergency response team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

Burned Area Emergency Response Team Environmental Protection Specialist Date

Richard Birger, Project Leader, Desert NWR Complex, FWS Date

APPENDIX III - MAPS

- **Amended Non-Native Invasive Species Map**
- **Cultural Recourse Survey Map**

APPENDIX IV - PHOTO DOCUMENTATION

- Non-native Invasive Species Control and Mapping
- Native Planting

Old Agriculture Field with invasives

Bassia in old agriculture fields

Tamarisk Control Site

Bassia and Hoary cress populations

Native Planting site, Pre-treatment

NCC crews prepping and planting site